

CONTINUOUSLY MOVING SIDEWALK PEDESTRIAN TRANSPORT SYSTEM

PRIOR APPLICATIONS

5 This is a non-provisional application which bases priority
on provisional patent application 60/408,706, filed September
6, 2002.

BACKGROUND OF THE INVENTION

1. Field of The Invention.

10 This invention relates to a pedestrian transport system.
More particularly, it relates to a continuously moving sidewalk
type mass transport system with a hydraulically levitated
pathway loop for supporting and transporting pedestrians.

2. Background of the Prior Art.

15 Pedestrian transport systems are known in the prior art.
Their use has escalated over the years and are typically used
in environments that require pedestrians to move great
distances by foot from one point to another. For instance, in
large airports, continuously moving transport systems are
widely used to move travelers from one terminal to another or
20 front the departure and arrival gates to the baggage claim
area, parking lots and the ticket counters. These transport
systems are typically electrically powered and have mechanical
motors which turn rotors or gears which move a tarp like
walkway along a set of tracks.

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U.S. Patent 6,170,632 is drawn to a moving walkway which utilizes individual pallets, which are arranged for rounding or circulation on annular rails. Screw rods are installed on the rails to move the pallets with their moving rollers. A major
5 disadvantage of this prior art system is the speed and efficiency due to the rolling components which creates friction.

U.S. Patent No. 4,509,429 discloses a transportation system utilizing a stretchable train of cars and stretchable
10 band conveyors. This prior art system employs independent load carrying components connected together and driven by an endless screw positioned along the closed loop path.

U.S. Patent No. 4,964,496 discloses a mass transit system. This prior art mass-transit system includes an endless flexible
15 member driven by revolving platforms at a constant speed to carry cars, which together form an endless train. This invention requires cars to carry the pedestrians which is makes it more expensive and complicated to install and to maintain.

U.S. Patent No 5,571,254 illustrates a speed variable
20 moving sidewalk. This prior art system utilizes an endless circulating path as a moving sidewalk for conveying passengers. However, this includes a large number of tread boards moving along the circulating path. Each tread board moves independently and is guided by guide rails and has hooks on an

underside for engaging shafts of a driving chain. Tread boards, hooks or chains have to be driven which creates additional friction and cost.

5 U.S. Patent No. 5,044,485 discloses a moving walkway having at least one beltway section that has two spaced small diameter rollers defining the ends of the beltway section, a drive unit and a thin flexible continuous slider belt.

10 U.S. Patent 5,341,683 discloses a moving walkway which utilizes a circulating endless belt. However, successive modules are required to engage multiple rollers for creating the motion for the moving walkway. This complicates the design and makes the walkway more inefficient.

15 U.S. Patent No. 5,538,124 discloses yet another moving walkway including at least one flat slider belt entrained around rollers and a termination plate at the discharge end of the belt.

20 An improved walkway system is clearly needed. The system should not be limited to indoor environments and in a preferred embodiment be a continuously moving loop which can be employed in an outdoor environment. Such a walkway would greatly benefit a pre-designed or pre-planned town wherein the continuously moving walkway could be conveniently located such that all members of the town could easily utilize the walkway to transport themselves from their respective homes to other

parts of the town including stores, restaurants, schools, workplaces and other transportation systems, such as train stations, bus stops and airports. Such a system would greatly reduce the need for using gas combustion type vehicles in the town as well as alleviate the need for an extensive public transportation system where the transport walkway system is conveniently employed.

SUMMARY OF THE INVENTION

I have invented an improved sidewalk pedestrian transport system. My system is continuously moving and is used to transport pedestrians from their respective homes and workplaces to other parts of the town.

The transport system of the present invention uses a standard railway loop. Individual railroad tracks of the railway loop utilize parallel disposed steel rails and are connected by steel or wood railroad ties supported by a compressed roadbed of stones. For the transport systems of the present invention, the railway loop is separated from all existing locomotive traffic and normal railway use and is solely used for the transportation of pedestrians. Nothing herein limits the use of a tracked laid specifically for the transport system of the present invention.

The area of the roadbed between the steel rails is hydraulically sealed to provide for the suspension of water to

the height of the steel rails. A liquid sealant is used which dries to form a water retention surface within the span between the steel rails throughout the separate railway loop along a top portion of the railroad ties. A pedestrian pathway is mounted across the top of the steel rails to provide for the flow of water underneath the pathway but above the water retention surface. A set of spaced cup members having an open front end and a closed back end are located along a bottom surface of the pedestrian pathway. The pathway has a set of opposed outer distal edges which wrap around a top and side surface of the rails. A bead is provided along bottom portions of each outer distal side edge for communicating with a groove formed in each rail thereby assisting in the movement of the pathway along the rails.

The pathway is a single continuous loop, superimposed on the entire railway loop. The mounting is such that a water flow underneath can sustain a pressure flow while allowing the pathway to move along the loop without the loss of any water. The pressure flow is sustained from a power source adjacent to the railway loop. The motion of the pathway is caused by the force of the water beneath it and supplemental mechanical motion of the pathway is provided by the adjacent power source. The cup members assist in moving the pedestrian pathway along the direction of the water flow by capturing water therein.

In this preferred embodiment, a pedestrian can step onto the moving pathway and move there along without expending any additional energy by physically walking. The pedestrian can now easily be transported from one location along the railway loop to another location without the need or use of any other form of transportation.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention can be best understood by those having ordinary skill in the art by reference to the following detailed description when considered in conjunction with the accompanying drawings in which:

Figure 1 is a perspective view, partially in section, of a continuously moving sidewalk pedestrian transport system of the present invention;

Figure 2 is a cross sectional view along lines 2-2 of Figure 1;

Figure 3 is a close-up cross sectional view taken from Figure 2;

Figure 4 is a cross sectional view along lines 4-4 of Figure 1; and

Figure 5 is a top plan view, partially in section, of the continuously moving sidewalk pedestrian transport system of the present invention wherein it is shown that the system is a loop and can be powered electrically or hydraulically by a

substation along the loop.

DETAILED DESCRIPTION OF THE INVENTION

Throughout the following detailed description, the same reference numerals refer to the same elements in all figures.

5 Referring to Figure 5, a continuously moving sidewalk pedestrian transport system of the present invention is shown. The transport system utilizes a locomotive railway loop 10 that is separated from any existing railway lines in a residential community where pedestrians can easily access the sidewalk from
10 their homes and travel upon it to shopping locations, community parks, workplaces and other transportation stations, to just name a few.

With reference to Figure 1, each transport system is constructed with an existing locomotive railway line or a newly
15 constructed line having steel rails 22 mounted to cross ties 26 with nails 24 (see Figures 1, 2 and 5) set either within in a stone gravel bed 27 or laid thereupon. The present invention utilizes an area between the pair of steel rails 22 such that it is sealed for the entire railway loop 10.

20 Referring to Figures 1 and 2, a pathway 33 is suspended between the pair of steel rails 22 upon a fluid 32 retained within the area between the steel rails 22 encompassing the entire railway loop 10. Fluid 32 is retained within the area and is prevented from leaking by employing a natural or man-

made sealant 30. Examples of man-made sealants that can be used include, but are not limited to, various types of polymers or acrylic. Examples of natural sealants that can be used include, but are not limited to, various metals or clay soil.

5 Referring now back to Figure 5, it is shown that a power source 46 sustains a constant pressure for the fluid 32 (not shown in Figure 3) through a pump (not shown) retained between the pair of steel rails 22. The pathway 33 (shown in Figures 1 and 2) is moved along a top portion 45 of the sealed area
10 between the steel rails 22 by the power source 46 at a constant speed suitable for pedestrians to ride for easy access to any locations along railroad loop 10.

Referring to Figure 3, a close-up view taken from Figure 2, it is shown that pathway loop 33 wraps around each steel
15 rail 22 at opposed ends. In particular, opposed outer distal edges 54 of pathway loop 33 wrap over a top surface 50 and around an outer side edge 52 of rail 22. Pathway 33 further includes a bottom edge 54 having an integrally attached bead member 58 for engaging and communicating with a groove 56
20 formed in rail 22. Grease 48 is applied between rail top surface 50 and outer side surface 52 and pathway 33 for assisting in the water tight seal as well as assisting in the movement of pathway 33 along the direction of the water flow.

As shown in Figure 4, a plurality of downwardly extending spaced cup portions 62 are formed along a bottom surface 70 of pathway loop 33. Cup portions 62 assist in the movement of pathway loop 33 by catching and retaining fluid 32 from the fluid flow within a cavity 66. Cup portions 62 have an open front end 64 and a closed back end 68 which define cavity 66. In the preferred embodiment, cup portions 62 are formed by cutting a small slice into pathway loop bottom surface 70 which allows fluid 32 to "bow" out cup portion 62. However, an alternate embodiment includes forming integrally attached cup portions 62 along the pathway loop bottom surface 70 by molding.

An alternate embodiment of the present invention provides for a magnetic levitation effect between the continuous pathway 33 and steel rails 22 suitable for the pedestrians to efficiently move within their local community. This embodiment does not require grease as the outer distal edges 54 of pathway loop 33 is held away by a slight margin by a magnetic field.

Equivalent elements can be substituted for the ones set forth above such that they perform the same function in the same manner thereby achieving the same result.